

02.02.06

IFW 1615

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as Express Mail, Airbill No. EV521707787, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: February 1, 2006

Signature:

*Mary Jane DiPalma*  
(Mary Jane DiPalma)

Docket No.: ASZD-P01-898  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:  
Hargreaves et al.

Application No.: 10/534651

Confirmation No.: 7098

Filed: May 12, 2005

Art Unit: 1615

For: QUINOLINE DERIVATIVES AS  
GLUCOKINASE LIGANDS

Examiner: Not Yet Assigned

**INFORMATION DISCLOSURE STATEMENT (IDS)**

MS Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned (37 CFR 1.97(b)(3)).

Applicant has not submitted copies of each cited U.S. patent and U.S. patent application as required by 37 CFR 1.98(a)(2)(i), amended October 2004, as the U.S. Patent and Trademark Office has waived this requirement for all U.S. patent applications. Applicant submits herewith copies of foreign and non-patents in accordance with 37 CFR 1.98(a)(2).

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this

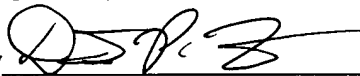
Information Disclosure statement shall not be construed to be an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 18-1945, under Order No. ASZD-P01-898.

Dated: February 1, 2006

Respectfully submitted,

By 

David P. Halstead, Ph.D.

Registration No.: 44,735

ROPES & GRAY LLP

FISH & NEAVE IP GROUP

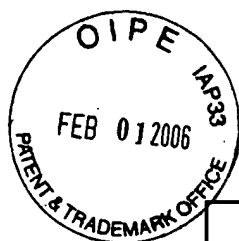
One International Place

Boston, Massachusetts 02110-2624

(617) 951-7000

(617) 951-7050 (Fax)

Attorneys/Agents For Applicant



PTO/SB/08a/b (07-05)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<b>Complete if Known</b>	
				Application Number	10/534651
				Filing Date	May 12, 2005
				First Named Inventor	Rodney Brian Hargreaves
				Art Unit	1615
				Examiner Name	Not Yet Assigned
Sheet	1	of	4	Attorney Docket Number	ASZD-P01-898

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	AA*	US-6,613,942	09-02-2003		

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				
	BA	WO-00/026202-A1	05-11-2000	Pharmacia & Upjohn S.P.A.		
	BB	WO-00/58293-A1	10-05-2000	F. Hoffmann-La Roche AG		
	BC	WO-01/20327-A1	03-22-2001	AstraZeneca AB		
	BD	WO-01/44216-A1	06-21-2001	F. Hoffman-La Roche AG		
	BE	WO-01/83465-A2	11-08-2001	F. Hoffman-La Roche AG		
	BF	WO-01/83478-A2	11-08-2001	F. Hoffman-La Roche AG		
	BG	WO-01/85706-A1	11-15-2001	F. Hoffman-La Roche AG		
	BH	WO-01/85707-A1	11-15-2001	F. Hoffman-La Roche AG		
	BI	WO-02/00633-A1	01-03-2002	Tularik Inc.		
	BJ	WO-02/024682-A1	03-28-2002	Janssen Pharmaceutica N.V.		
	BK	WO-02/064545-A1	08-22-2002	Aventis Pharma Deutschland GMBH		
	BL	WO-02/08209-A1	01-31-2002	F. Hoffman-La Roche AG		
	BM	WO-02/14312-A1	02-21-2002	F. Hoffman-La Roche AG		
	BN	WO-02/46173-A1	06-13-2002	F. Hoffman-La Roche AG		
	BO	WO-02/48106-A2	06-20-2002	F. Hoffman-La Roche AG		
	BP	WO-03/000262-A1	01-03-2003	AstraZeneca AB		
	BQ	WO-03/000267-A1	01-03-2003	AstraZeneca AB		
	BR	WO-03/015774-A1	02-27-2003	AstraZeneca AB		
	BS	WO-03/022856-A1	03-20-2003	Pharmacia & Upjohn Company		
	BT	WO-03/028641-A2	04-10-2003	Taisho Pharmaceutical Co., Ltd.		
	BU	WO-03/047626-A1	06-12-2003	Novo Nordisk A/S		
	BV	WO-03/048152-A2	06-12-2003	Tularik Inc.		
	BW	WO-03/055482-A1	07-10-2003	Novo Nordisk A/S		
	BX	WO-03/080585-A1	10-02-2003	Banyu Pharmaceutical Co., Ltd.		
	BY	WO-03/082838 A1	10-09-2003	Shanghai Institute of Materia Medica		
	BZ	WO-03/095438-A1	11-20-2003	F. Hoffman-La Roche AG		
	BA1	WO-03/097824-A1	11-27-2003	Banyu Pharmaceutical Co., Ltd.		
	BB1	WO-04/002481-A1	01-08-2004	Novo Nordisk A/S		
	BC1	WO-04/045614-A1	06-03-2004	AstraZeneca AB		
	BD1	WO-04/046139-A1	06-03-2004	AstraZeneca AB		
	BE1	WO-04/050645-A1	06-17-2004	Novartis AG		
	BF1	WO-04/052869-A1	06-24-2004	F. Hoffman-La Roche AG		
	BG1	WO-04/063179-A1	07-29-2004	Eli Lilly and Company		
	BH1	WO-04/063194-A1	07-29-2004	Eli Lilly and Company		

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--



PTO/SB/08a/b (07-05)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

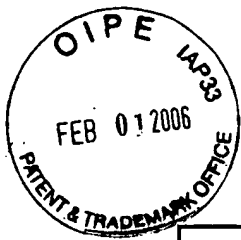
Substitute for form 1449A/B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)				<b>Complete if Known</b>	
				Application Number	10/534651
				Filing Date	May 12, 2005
				First Named Inventor	Rodney Brian Hargreaves
				Art Unit	1615
				Examiner Name	Not Yet Assigned
Sheet	2	of	4	Attorney Docket Number	ASZD-P01-898

	BI1	WO-04/072031-A2	08-26-2004	Osi Pharmaceuticals, Inc.		
	BJ1	WO-04/072066-A1	08-26-2004	Osi Pharmaceuticals, Inc.		
	BK1	WO-04/076420-A1	09-10-2004	Banyu Pharmaceutical Co., Ltd.		
	BL1	WO-04/081001-A1	09-23-2004	Banyu Pharmaceutical Co., Ltd.		
	BM1	WO-04/110375-A2	12-23-2004	Merck & Co., Inc.		
	BN1	WO-05/044801-A1	05-19-2005	AstraZeneca AB		
	BO1	WO-05/049019-A1	06-02-2005	Novo Nordisk A/S		
	BP1	WO-05/054200-A1	06-16-2005	AstraZeneca AB		
	BQ1	WO-05/054233-A1	06-16-2005	AstraZeneca AB		
	BR1	WO-05/056530-A1	06-23-2005	AstraZeneca AB		
	BS1	EP-1336607-A1	08-20-2003	Novo Nordisk A/S		
	BT1	GB-2385328-A	08-20-2003	F. Hoffman-La Roche AG		
	BU1	JP-09040557 A	02-10-1997	Tanabe Seiyaku Co. Ltd.		
	BV1	JP-2000086657 A	03-28-2000	Teikoku Hormone Mfg. Co.		

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. \* CITE NO.: Those application(s) which are marked with an single asterisk (\*) next to the Cite No. are not supplied (under 37 CFR 1.98(a)(2)(iii)) because that application was filed after June 30, 2003 or is available in the IFW. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>	
	CA	Alvarez et al., "Evidence that Glucokinase Regulatory Protein is Expressed and Interacts with Glucokinase in Rat Brain," Journal of Neurochemistry 80:45-53 (2002)		
	CB	Alvarez et al., "Expression of the Glucagon-Like Peptide-1 Receptor Gene in Rat Brain," Journal of Neurochemistry 66(3):920-927 (1996)		
	CC	Bell et al., "Glucokinase Mutations, Insulin Secretion, and Diabetes Mellitus," Annu. Rev. Physiol. 58:171-186 (1996)		
	CD	Brocklehurst et al., "Stimulation of Hepatocyte Glucose Metabolism by Novel Small Molecule Glucokinase Activators," Diabetes 53:535-541 (2004)		
	CE	Caro et al., "Liver Glucokinase: Decreased Activity in Patients with Type II Diabetes," Horm. Metab. Res. 27:19-22 (1995)		
	CF	Christesen et al., "The Second Activating Glucokinase Mutation (A456V) Implications for Glucose Homeostasis and Diabetes Therapy," Diabetes 51:1240-1246 (2002)		
	CG	Corbett, "Track 3 - Mastering Medicinal Chemistry: Applying Organic Chemistry to Biological Problems, Success Stories in Medicinal Chemistry," Molecular Medicine Tri-Conference, Moscone West Convention Center, San Francisco California, 3/26/05 - 11:00-11:30 Glucokinase Activators: Discovery of Novel, Orally Active Glucose Lowering Agents, March 24-26, 2004		
	CH	DeFronzo, "The Triumvirate: $\beta$ -Cell, Muscle, Liver - A Collusion Responsible for NIDDM," Diabetes 37:667-687 (1988)		
	CI	Desai et al., "Phenotypic correction of Diabetic Mice by Adenovirus-Mediated Glucokinase Expression," Diabetes 50:2287-2295 (2001)		

Examiner Signature		Date Considered	
--------------------	--	-----------------	--



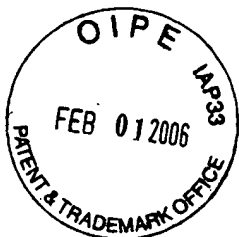
PTO/SB/08a/b (07-05)  
Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<b>Complete if Known</b>	
				Application Number	10/534651
				Filing Date	May 12, 2005
				First Named Inventor	Rodney Brian Hargreaves
				Art Unit	1615
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	ASZD-P01-898
Sheet	3	of	4		

CJ	Ferre et al., "Correction of Diabetic Alteractions by Glucokinase," Proc. Natl. Acad. Sci. USA 93:7225-7230 (1996)	
CK	Froguel et al., "Familial Hyperglycemia Due to Mutations in Glucokinase - Definition of a Subtype of Diabetes Mellitus," The New England Journal of Medicine 328(10):697-702 (1993)	
CL	Fujimoto et al., "Administration of D-Glucosamine into the Third Cerebroventricle Induced Feeding Accompanied by Hyperglycemia in Rats," Life Sciences 37(26):2475-2482 (1985)	
CM	Glaser et al., "Familial Hyperinsulinism Caused by an Activating Glucokinase Mutation," The New England Journal of Medicine 338(4):226-230 (1998)	
CN	Grimsby et al., "Allosteric Activators of Glucokinase: Potential Role in Diabetes Therapy," Science 301:370-373 (2003)	
CO	Grimsby, "Glucokinase Activators - Potential Treatment for Type 2 Diabetes," Roche - SMI Diabetes London UK pgs. 28-29 (2002)	
CP	Kurata et al., "D-Glucose Suppression of Eating After Intra-Third Ventricle Infusion in Rat," Physiology & Behavior 37:615-620 (1986)	
CQ	Kurata et al., "Structural Evaluation of Glucose Analogues on Feeding Elicitation in Rat," Metabolism 38(1):46-51 (1989)	
CR	Levin et al., "Brain Glucose Sensing and body Energy Homeostasis: Role in Obesity and Diabetes," A. J. of Physiology 276:R1223-R1231 (1999)	
CS	Levin et al., "Differential Effects of Diet and Obesity on High and Low Affinity Sulfonylurea Binding Sites in the Rat Brain," Brain Research 739:293-300 (1996)	
CT	Levin et al., "In vivo and In vitro Regulation of [ <sup>3</sup> H] Glyburide Binding to Brain Sulfonylurea Receptors in Obesity-Prone and Resistant Rats by Glucose," Brain Research 776:146-153 (1997)	
CU	Levin et al., "Reduced Glucose-Induced Neuronal Activation in the Hypothalamus of Diet-Induced Obese Rats," Brain Research 808:317-319 (1998)	
CV	Levin, "Glucosensing Neurons do More Than Just Sense Glucose," International Journal of Obesity 25(5):S68-S72 (2001)	
CW	Lynch et al., "Localization of Glucokinase Gene Expression in the Rat Brain," Diabetes 49:693-700 (2000)	
CX	McKerrecher et al., "Discovery, Synthesis and Biological Evaluation of Novel Glucokinase Activators," Bioorganic & Medicinal chemistry Letters 15:2103-2106 (2005)	
CY	Mobbs et al., "Brain Glucose-Sensing Mechanisms: Ubiquitous Silencing by Aglycemia vs. Hypothalamic Neuroendocrine Responses," Am. J. Physiol. Endocrinol. Metab. 281:E649-E654 (2001)	
CZ	Moore et al., "Acute Fructose Administration Improves Oral Glucose Tolerance in Adults with Type 2 Diabetes," Diabetes Care 24(11):1882-1887 (2001)	
CA1	Printz et al., "Mammalian Glucokinase," Annu. Rev. Nutr. 13:463-496 (1993)	
CB1	Qian-Cutrone et al., "Glucolipsin A and B, Two New Glucokinase Activators Produced by Streptomyces purpurogeniscleroticus and Nocardia vaccinii," The Journal of Antibiotics 52(3):245-255 (1999)	
CC1	Roncero et al., "Functional Glucokinase Isoforms are Expressed in Rat Brain," Journal of Neurochemistry 74(5):1848-1857 (2000)	
CD1	Rowe et al., "Potassium Channel Dysfunction in Hypothalamic Glucose-Receptive Neurones of Obese Zucker Rats," Journal of Physiology 497(2):365-377 (1996)	
CE1	Schuit et al., "Perspectives in Diabetes - Glucose Sensing in Pancreatic $\beta$ -Cells - A Model for the Study of Other Glucose-Regulated Cells in Gut, Pancreas, and Hypothalamus," Diabetes 50:1-11 (2001)	

Examiner Signature	Date Considered
--------------------	-----------------



PTO/SB/08a/b (07-05)

Approved for use through 07/31/2006. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<b>Substitute for form 1449A/B/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>				<b>Complete if Known</b>	
				Application Number	10/534651
				Filing Date	May 12, 2005
				First Named Inventor	Rodney Brian Hargreaves
				Art Unit	1615
				Examiner Name	Not Yet Assigned
				Attorney Docket Number	ASZD-P01-898
Sheet	4	of	4		

	CF1	Seoane et al., "Glucokinase Overexpression Restores Glucose Utilization and Storage in Cultured Hepatocytes from Male Zucker Diabetic Fatty Rats," The Journal of Biological Chemistry 274(45):31833-31838 (1999)	
	CG1	Shiota et al., "Glucokinase Gene Locus Transgenic Mice are Resistant to the Development of Obesity-Induced Type 2 Diabetes," Diabetes 50:622-629 (2001)	
	CH1	Spanwick et al., "Insulin Activates ATP-Sensitive K <sup>+</sup> Channels in Hypothalamic Neurons of Lean, but Not Obese Rats," Nature Neuroscience 3(8):757-758 (2000)	
	CI1	Spanwick et al., "Leptin Inhibits Hypothalamic Neurons by Activation of ATP-Sensitive Potassium Channels," Nature 390:521-525 (1997)	
	CJ1	Velho et al., "Impaired Hepatic Glycogen Synthesis in Glucokinase-Deficient (MODY-2) Subjects," J. Clin. Invest. 98:1755-1761 (1996)	
	CK1	Yang et al., "Hypothalamic Glucose Sensor - Similarities to and Differences from Pancreatic $\beta$ -Cell Mechanisms," Diabetes 48:1763-1772 (1999)	
	CL1	Carroll et al., "Stress, Signalling and Control," Biochemical Society Meeting 679 2-4 July 2003	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--